

CLAIMS

1. An image data processing apparatus for processing image data encoded with the MPEG technique and including data groups (Pack_V) each having an auxiliary recording area (AUX_V) provided therein, led by an *I* or *P* picture and including a *B* picture, the apparatus comprising:

a recording means for recording a to-be-edited data group (Pack_V_h) at an edition point on a recording medium where the data groups (Pack_V) have already been recorded, and recording, to the recording medium, insertion data groups (EditPack_V_h) each having an insertion auxiliary recording area (EditAUX_V_h) provided therein before the data group (Pack_V_h) in response to a bit occupancy of a VBV (video buffering verifier) buffer used for decoding and including a copy picture repeatedly representing a previous picture and/or stuffing byte,

the recording means recording, based on the edition point in case the insertion data group (EditPack_V_h) is already recorded at the edition point, insertion data groups (EditPack_V_n) located before a new input data group (Pack_V_n) independently of the insertion data group (EditPack_V_n), and each having an insertion auxiliary recording area (EditAUX_V_n) provided therein and including a copy picture and/or stuffing byte.

2. The apparatus according to claim 1, wherein the recording means removes the insertion data group (EditPack_V_n) located before a new input data group

(Pack_V_n) when recording the insertion data group EditPack_V_n at the edition point.

3. The apparatus according to claim 1, further comprising:

a comparing means for reading, for comparison, a VBV delay (VBV_delay) recorded in the auxiliary recording area (AUX_V) and a VBV delay (VBV_delay_n) recorded in the insertion auxiliary recording area (EditAUX_V_n); and

a controlling means for controlling the number of copy pictures or stuffing bytes included in the insertion data group (EditPack_V_n) in response to the result of comparison supplied from the comparing means.

4. The apparatus according to claim 1, wherein the recording means records the VBV delay (VBV_delay_n) based on the stuffing byte included in the insertion data group (EditPack_V_n) to the insertion auxiliary recording area (EditAUX_V_n).

5. The apparatus according to claim 1, wherein the recording means appends, in case the insertion data group (EditPack_V_h) is formed from only a stuffing byte, a PES header not including PTS and DTS to the stuffing byte.

6. The apparatus according to claim 1, wherein the recording means records, in case a copy picture is already existent on the recording medium, a flag for identification of the copy picture to the recording medium.

7. The apparatus according to claim 6, wherein the recording means takes the top of the copy picture as the edition point.

8. The apparatus according to claim 1, wherein the recording means inserts a

stuffing byte after inserting a copy picture to the recording medium in case the insertion data group (EditPack_V_h) is formed from both a copy picture and stuffing byte, while inserting a stuffing byte after inserting a copy picture to the recording medium in case the insertion data group (EditPack_V_n) is formed from both a copy picture and stuffing byte.

9. An image data processing method of processing image data encoded with the MPEG technique and including data groups (Pack_V) each having an auxiliary recording area (AUX_V) provided therein, led by an *I* or *P* picture and including a *B* picture, the method comprising:

a recording step of recording a to-be-edited data group (Pack_V_h) at an edition point on a recording medium where the data groups (Pack_V) have already been recorded, and recording, to the recording medium, insertion data groups (EditPack_V_h) each having an insertion auxiliary recording area (EditAUX_V_h) provided therein before the data group (Pack_V_h) in response to a bit occupancy of a VBV (video buffering verifier) buffer used for decoding and including a copy picture repeatedly representing a previous picture and/or stuffing byte,

in the recording step, there being recorded, based on the edition point in case the insertion data group (EditPack_V_h) is already recorded at the edition point, insertion data groups (EditPack_V_h) located before a new input data group (Pack_V_n) independently of the insertion data group (EditPack_V_n), and each having an insertion auxiliary recording area (AditAUX_V_n) provided therein and including a

copy picture and/or stuffing byte.

10. The method according to claim 9, wherein in the recording step, there is removed the insertion data group (EditPack_V_n) located before a new input data group (Pack_V_n) when recording the insertion data group EditPack_V_n at the edition point.

11. The method according to claim 9, further comprising steps of:

reading, for comparison, a VBV delay (VBV_delay) recorded in the auxiliary recording area (AUX_V) and a VBV delay (VBV_delay_n) recorded in the insertion auxiliary recording area (EditAUX_V_n); and

controlling the number of copy pictures or stuffing bytes included in the insertion data group (EditPack_V_n) in response to the result of comparison supplied from the comparing means.

12. The method according to claim 9, wherein in the recording step, the VBV delay (VBV_delay_n) based on the stuffing byte included in the insertion data group (EditPack_V_n) is recorded to the insertion auxiliary recording area (EditAUX_V_n).

13. The method according to claim 9, wherein in the recording step, in case the insertion data group (EditPack_V_h) includes only a stuffing byte, a PES header not including PTS and DTS is appended to the stuffing byte.

14. The method according to claim 9, wherein in the recording step, in case a copy picture is already existent on the recording medium, a flag for identification of the copy picture is recorded to the recording medium.

15. The method according to claim 14, wherein in the recording step, the top of the copy picture is taken as the edition point.
16. The method according to claim 9, wherein:
 - in the recording step, there is inserted a stuffing byte after inserting a copy picture to the recording medium in case the insertion data group (EditPack_V_h) is formed from both a copy picture and stuffing byte; and
 - there is inserted a stuffing byte after inserting a copy picture to the recording medium in case the insertion data group (EditPack_V_n) is formed from both a copy picture and stuffing byte.